

WHAT IS CLAIMED IS:

1. A semiconductor device, comprising:
  - a substrate having a terminal to connect a conductive wire;
  - a first semiconductor chip mounted face-up above the substrate and electrically connected to the terminal formed on the substrate by the conductive wire;
  - a second semiconductor chip mounted above the first semiconductor chip via an insulating spacer; and
  - a solid material contained in the insulating spacer to keep a distance between the first semiconductor chip and the second semiconductor chip.
  
2. A semiconductor device, comprising:
  - a substrate having a terminal to connect a conductive wire;
  - a first semiconductor chip mounted face-up above the substrate and electrically connected to the terminal formed on the substrate by the conductive wire;
  - a second semiconductor chip mounted above the first semiconductor chip via an insulating resin; and
  - a solid material contained in the insulating resin to keep a distance between the first semiconductor chip and the second semiconductor chip.
  
3. A semiconductor device, comprising:
  - a substrate having a terminal;
  - a first semiconductor chip mounted face-up above the substrate;
  - a first electrode pad formed on the first semiconductor chip;
  - a first conductive wire connecting the first electrode pad and the terminal formed on the substrate electrically;
  - a second semiconductor chip mounted above the first semiconductor

chip;

- a second electrode pad formed on the second semiconductor chip;
- a second conductive wire connecting the second electrode pad and the terminal formed on the substrate;
- an insulating resin formed between the first semiconductor chip and the second semiconductor chip in such a way as wrapping the first conductive wire above first semiconductor chip;
- a solid material contained in the insulating resin to keep a distance between the first semiconductor chip and the second semiconductor chip; and
- molding resin to mold the first semiconductor chip to which the first conductive wire is connected and the second semiconductor chip to which the second conductive wire is connected.

4. A semiconductor device, comprising:

- a substrate having a terminal;
- a first semiconductor chip mounted face-up above the substrate;
- a first electronic pad formed on the first semiconductor chip;
- a first conductive wire connecting the first electrode pad and the terminal formed on the substrate electrically;
- a second semiconductor chip mounted above the first semiconductor chip;
- a second electrode pad formed on the second semiconductor chip;
- a second conductive wire connecting the second electrode pad and the terminal formed on the substrate electrically;
- an insulating resin mounted between the first semiconductor chip and the second semiconductor chip and being at least under the second electrode pad; and
- a solid material contained in the insulating resin to keep a distance between the first semiconductor chip and the second semiconductor

chip.

5. The semiconductor device according to claim 1, further comprising an insulating layer formed entirely on a back portion of the second semiconductor chip.

6. The semiconductor device according to claim 1, wherein a size of the solid material is set corresponding to the distance between the first semiconductor chip and the second semiconductor chip.

7. A semiconductor device, comprising:  
a substrate having a terminal;  
a first semiconductor chip mounted in a flip-chip above the substrate;  
a second semiconductor chip mounted face-up above the first semiconductor chip via an adhesive layer and electrically connected to the terminal by a first conductive wire;  
a third semiconductor chip mounted face-up above the second semiconductor chip via an insulating spacer and electrically connected to the terminal by a second conductive wire; and  
a solid material contained in the insulating spacer to keep a distance between the second semiconductor chip and the third semiconductor chip.

8. A semiconductor device, comprising:  
a substrate having a terminal;  
a first semiconductor chip mounted face-up above the substrate;  
a second semiconductor chip mounted above the first semiconductor chip via an adhesive layer and electrically connected to the terminal formed on the substrate by a first conductive wire;  
a third semiconductor chip mounted face-up above the second

semiconductor chip via an insulating layer and electrically connected to the terminal formed on the substrate by a second conductive wire; and

a solid material contained in the insulating resin to keep a distance between the second semiconductor chip and the third semiconductor chip.

9. The semiconductor device according to claim 1, wherein an elasticity ability of the solid material is better than an elasticity ability of the semiconductor chip.

10. The semiconductor device according to claim 1, wherein the solid material is a globular particle.

11. The semiconductor device according to claim 10, wherein a maximum of a radius of the globular particle is practically equal to a thickness of the insulating spacer.

12. The semiconductor device according to claim 10, wherein a weight of the globular particle is within a range from 1% through 10% of that of the insulating spacer.

13. A semiconductor device, comprising:

- a substrate having a terminal to connect a conductive wire;
- a first electronic part mounted face-up above the substrate and electrically connected to the terminal that is formed on the substrate by the conductive wire;
- a second electronic part mounted above the first electronic part via an insulating spacer; and
- a solid material contained in the insulating spacer to keep a certain distance between the first electronic part and the second electronic part.

14. An electronic equipment, comprising:

- a substrate having a terminal to connect a conductive wire;
- a first semiconductor chip mounted face-up above the substrate and electrically connected to the terminal formed on the substrate by the conductive wire;
- a second semiconductor chip mounted above the first semiconductor chip via an insulating spacer;
- a solid material contained in the insulating spacer to keep a distance between the first semiconductor chip and the second semiconductor chip; and
- an electronic part electrically connected to the first semiconductor chip and the second semiconductor chip via the substrate.

15. A method of manufacturing a semiconductor device, comprising:

- mounting a first semiconductor chip above a substrate having a terminal to connect a conductive wire;
- connecting the first semiconductor chip mounted above the substrate and the terminal formed on the substrate by the conductive wire;
- forming an insulating spacer containing a particle above the first semiconductor chip ,which is connected by the conductive wire; and
- mounting a second semiconductor chip above the first semiconductor chip via the insulating spacer.

16. A method of manufacturing a semiconductor device, comprising:

- mounting a first semiconductor chip above a substrate having a terminal to connect a conductive wire;
- connecting the first semiconductor chip mounted above the substrate and the terminal formed on the substrate by the conductive wire;
- forming an insulating resin containing a particle on the first semiconductor chip, which is connected by the conductive wire; and

mounting a second semiconductor chip above the first semiconductor chip via the insulating resin.

17. The semiconductor device according to claim 2, further comprising an insulating layer formed entirely on a back portion of the second semiconductor chip.

18. The semiconductor device according to claim 3, further comprising an insulating layer formed entirely on a back portion of the second semiconductor chip.

19. The semiconductor device according to claim 4, further comprising an insulating layer formed entirely on a back portion of the second semiconductor chip.

20. The semiconductor device according to claim 2, wherein a size of the solid material is set corresponding to the distance between the first semiconductor chip and the second semiconductor chip.